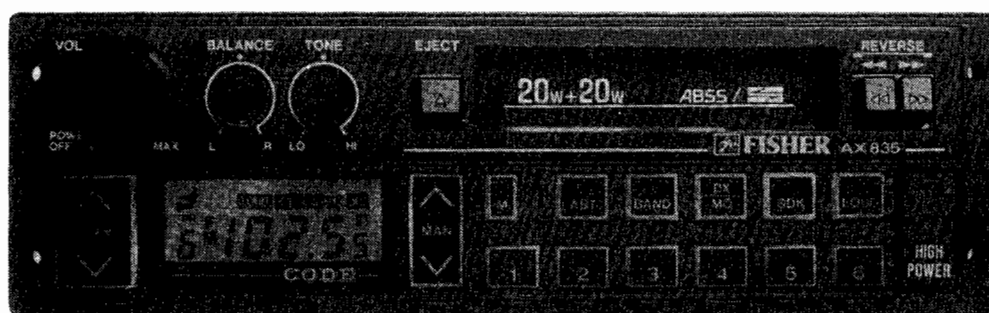




## Service Manual

## Full Auto Reverse CarFidelity Receiver/ Cassette Player

**AX 835** (EUROPE)



**PRODUCT CODE No.**  
147 578 34

### Specifications

#### Tuner Section FM

Tuning Range (MHz)...87.5—108 MHz  
Channel Spacing  
(kHz).....50 kHz (Auto)  
Sensitivity  
(150 ohms).....2  $\mu$ V  
Limiting  
Sensitivity.....4  $\mu$ V  
Auto Seek  
Stop Level.....10  $\mu$ V  
Image Rejection.....70 dB  
Selectivity (300 kHz)...65 dB  
AM-Suppression.....40 dB  
Capture Ratio.....2 dB  
THD Mono.....0.3%  
Stereo.....0.5%  
Frequency Response  
(-4.5dB).....40—12,500 Hz  
Channel Separation  
(1,000 Hz).....35 dB

#### Tuner Section AM

Tuning Range MW ....522—1,620 kHz

#### Channel Spacing

MW .....9 kHz  
(Auto, manual)

Frequency  
Response  
(-4.5dB).....50—2,000 Hz  
Image Rejection  
(1,400 kHz) .....55 dB  
Selectivity (9 kHz) ....±80 dB


#### Cassette Section

Max. Speed  
Deviation .....±3.0%  
Wow and Flutter  
(DIN).....0.15%  
Max. Winding  
Speed (C-60).....90 sec.  
Frequency  
Response.....63—12,500 Hz  
S/N Ratio.....52 dB  
Crosstalk (1,000 Hz) ...40 dB

#### General

Output Power  
2 channel 10% .....2x14 watts  
Max .....2x20 watts  
DC Power Supply .....11—16 volts  
Current Drain  
(Power off) .....10 mA  
(Power on).....6A Max.  
Dimensions  
(WxHxD).....178x50x150 mm  
Weight.....1.2 kg

The above mentioned specification are mainly based on the IHF measurement standard.  
They can therefore not directly be compared with specifications based on the DIN standard or other standards.

REFERENCE No. WM-22115 

## ALIGNMENT PROCEDURES

### General

#### Test Conditions

##### Signal generator output;

Modulation frequency 1000 Hz

Modulation percentage 30%

Signal level just high enough to provide meter deflection.

##### Signal application;

Antenna receptacle through the dummy antenna.

##### Output meter connection;

Across the speaker or dummy load 4 ohms.

##### Setting of radio controls;

Volume control at maximum response.

Tone control at the center position.

##### Power supply 14.0V

\* Location of the components for alignment are shown in **MAIN PARTS IDENTIFICATION ILLUSTRATION (TOP VIEW)**.

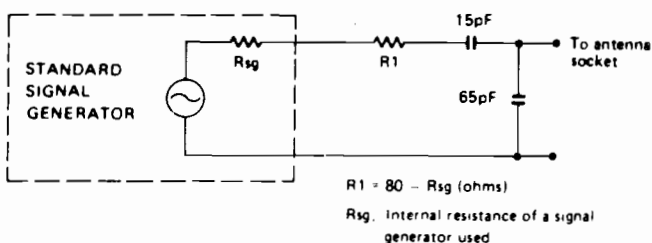
#### Alignment of Head Azimuth

1. Insert a BASF 10kHz standard test tape and set the unit in **play mode**.
2. Tune the azimuth adjusting screw until you obtain maximum reading on the VTVM.

### MW and RF Alignment

Step	Signal	Frequency	Dial Set	Test Equipment	Adjustment
1	MW	_____	522 kHz	Connect a voltage meter to TP301 and common GND	Adjust T307 for voltage to be 1.2V.
2	Through Dummy ANT Fig. 1	603 kHz	603 kHz	Connect VTVM to output terminal	Tune T301, 303 for maximum output.
3		999 kHz	999 kHz		Tune T305, 306 for maximum output.
4	MW 37dB $\mu$	999 kHz Stop sens	999 kHz	Connect voltage meter to TP300	Adjust SVR300 for voltage to be 2.5V

**Figure 1 DUMMY ANTENNA FOR MW ALIGNMENT**

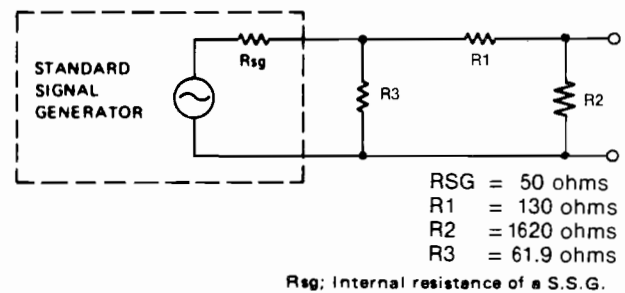


### FM RF Alignment

Step	Signal input	Frequency of signal Generator	Dial Setting of Radio	Test equipment connection	Adjustment
1	Through dummy ANT Fig. 2	98.000MHz	98.000MHz	Connect VTVM to speaker output leads.	Tune T401, T202 for maximum output.
2		98.000MHz 60dB $\mu$ V	98.000MHz	Connect voltage meter to the speaker terminal	Adjust main VR for 1.4V
3		97.950MHz	98.000MHz	Connect voltage meter to the speaker terminal	Adjust T202 for voltage to be 0.7V
4		98.000MHz	98.000MHz	Connect voltage meter to the speaker terminal	Adjust SVR301 for 3db limiting to be 14db
5		98.000MHz (40 $\pm$ 3dB $\mu$ )	98.000MHz		At local position, Adjust SVR203 for auto search stop sensitivity

NOTE 1. When you adjust step 2, use only plastic driver.

**Figure 2 DUMMY ANTENNA FOR FM RF ALIGNMENT**



#### Multiplex Alignment (PLL)

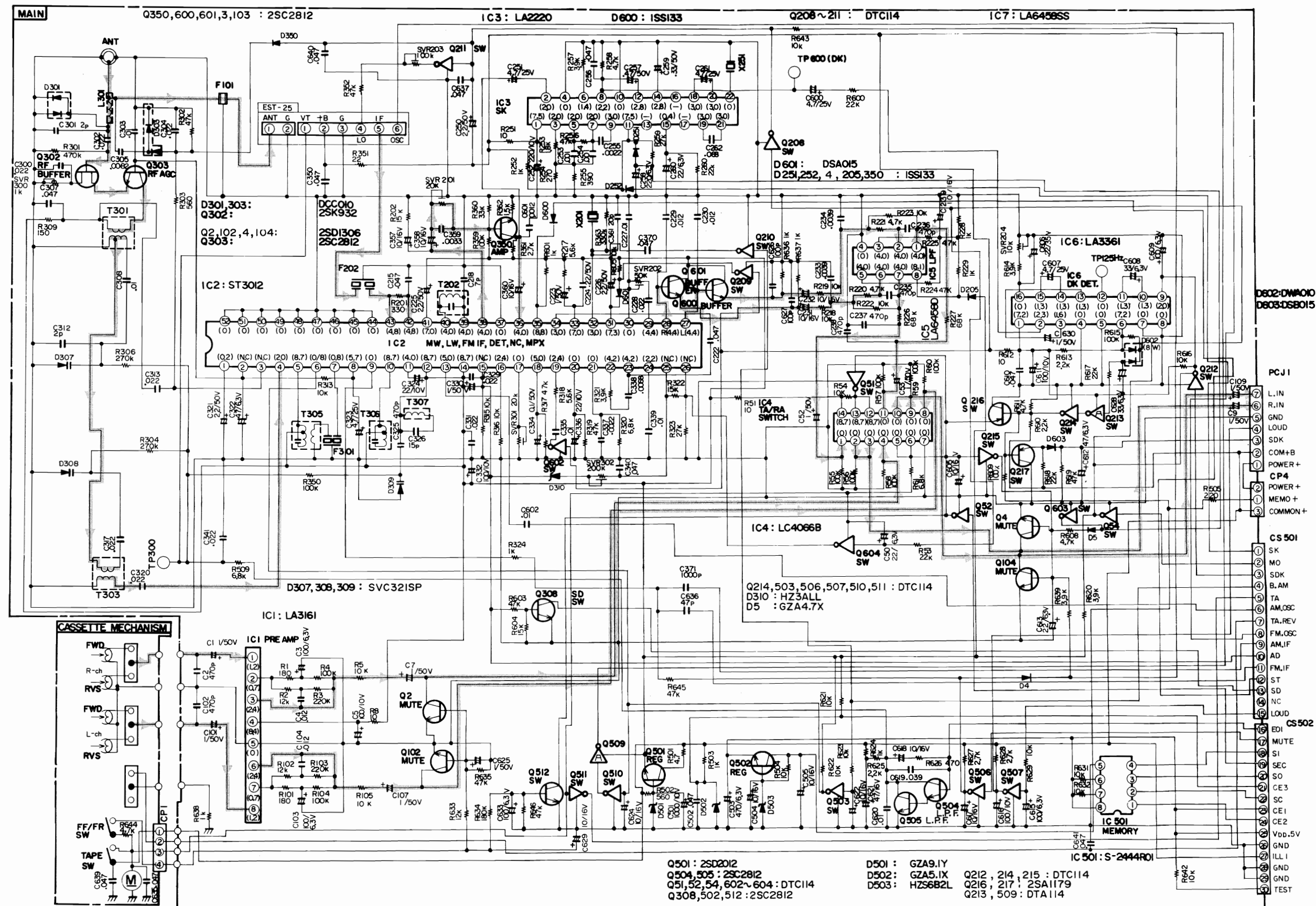
##### PRELIMINARIES:

1. A stereo signal modulator (SSM) is necessary to perform this alignment.
2. All adjustments below must be done, setting the frequency at 98MHz on LCD display and applying 60dB FM signal modulated by specified signals as described below.
3. MPX button should be placed in stereo position during FM multiplex alignment.

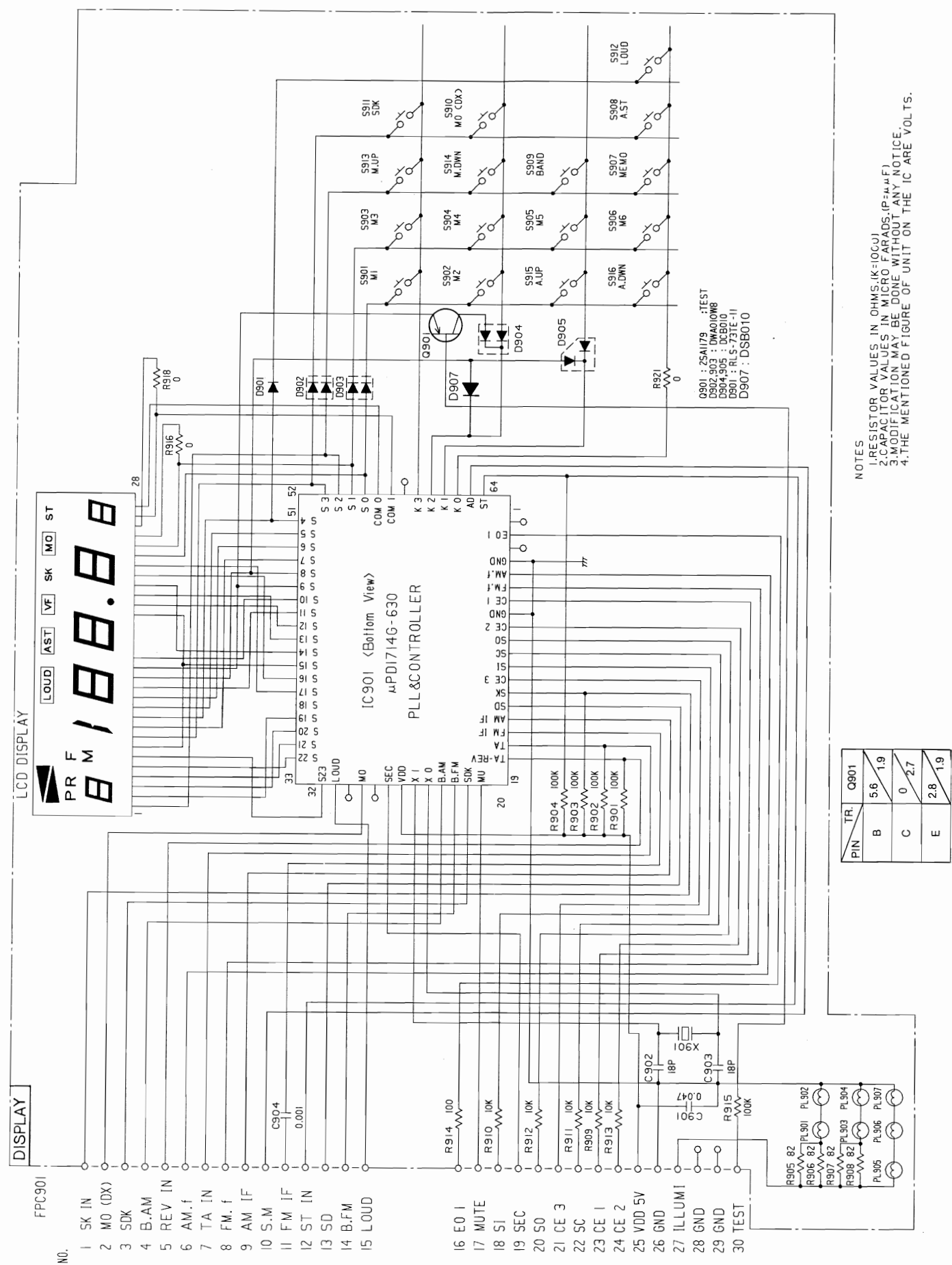
Step	Alignment	Instrument Connections		Adjustment
		Input	Output	
1	Pilot Canceling	Apply FM stereo signal modulated only by 8% pilot signal to antenna terminal through dummy ANT.	Connect VTVM to speaker output of Left and Right Channel.	Adjust SVR202 to minimum output on VTVM.
2	10dB (SNC) Separation control	In addition Set the output signal under input level of 32dB	Connect VTVM to speaker output leads of Left and Right channel.	Adjust the SVR302 to make separation of 10dB + 5dB - 0dB between Left and Right channel.
3	Maximum Separation control	Apply FM stereo signal modulated only by 8% pilot signal and 30% stereo signal through dummy ANT to antenna terminal. Set the output select switch of SSG to the Left mode.	Connect VTVM to the Right Speaker terminal	Adjust SVR201 to minimum output on VTVM.
4	—	—	—	Repeat step 2, step 3.



SCHEMATIC DIAGRAM



SCHEMATIC DIAGRAM

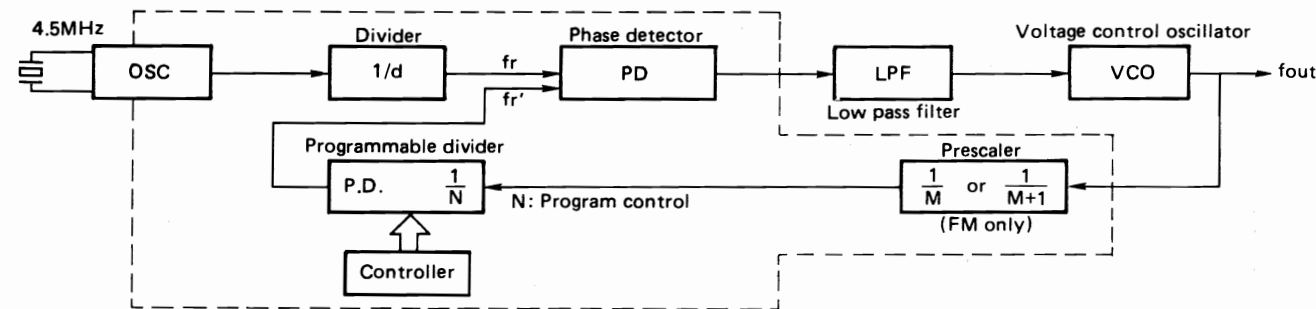


NOTES  
1. RESISTOR VALUES IN OHMS, IK=100K  
2. CAPACITOR VALUES IN MICRO FARADS, (P=20PF)  
3. MODIFICATION MAY BE DONE WITHOUT ANY NOTICE.  
4. THE MENTIONED FIGURE OF UNIT ON THE IC ARE VOLTS.

PIN	TR.	Q901
B	5.6	1.9
C	0	2.7
E	2.8	1.9

CIRCUIT DESCRIPTION

1. BASIC OPERATION OF PULL FREQUENCY SYNTHESIZER



The illustration above is a block diagram which is a fundamental PLL frequency synthesizer.

In order to obtain reference frequency fr, the frequency of 4.5 MHz generated from a crystal oscillator (OSC) is passed into a divider circuit of 1/d.

This fr is compared with fr', and runs through phase detector (PD) and low pass filter (LPF) to be inverted to direct-current signal, which is then applied as varicap voltage of voltage control oscillator (VCO), thereby controlling the oscillation frequency.

This oscillation frequency fout is divided down to 1/N by programmable divider (PD), so that one closed loop is fixed in the relation of

$$f_{out} = fr \times N$$

therefore, the operation of PLL is stabilized

In the case of automatic channel selection, the dividing ratio N is altered by the PD by a command from controller, and fout is changed accordingly.

Programmable divider

Since the oscillation frequency of VCO is very high as compared with fr, it is divided down to 1/N (in the case of AM) to decrease the difference from fr in this circuit.

Phase detector

This is a circuit to detect the difference in frequency and phase between reference frequency fr and comparison frequency fr' in terms of pulses.

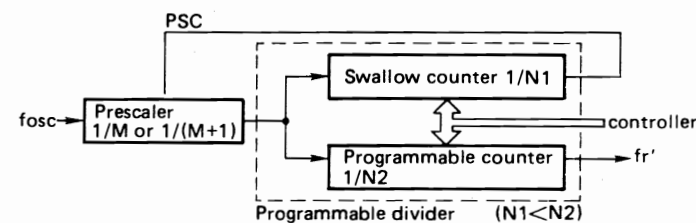
Low pass filter

This circuit is intended to vary and fix the output voltage in order to deliver a varicap voltage necessary for desired VCO frequency, on the basis of the output of the phase detector.

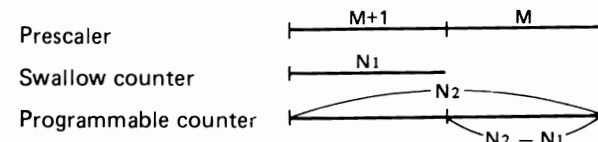
Prescaler

The local oscillation frequency in FM is higher than the operating speed of the programmable divider of PLL, thereby opposing to accurate operation. To avoid this, the local oscillation frequency is preliminarily divided down in this circuit to a proper frequency permitting reliable operation of the programmable divider.

Pulse swallow count system is employed. A couple of programmable divider (swallow counter and programmable counter) can be selected.



$$f_{osc} = \left\{ (M+1) N_1 + M (N_2 - N_1) \right\} fr' \\ = (MN_2 + N_1) fr'$$



The prescaler at first starts the frequency division with the ration M+1. Then swallow counter and programmable counter start counting simultaneously. When N1 inputs are applied, swallow counter stops counting. Then the frequency division ratio of the prescaler is switched to M. Programmable counter continues to count however and stops when the input reaches N2. The frequency division ratio of the prescaler switches back to M+1 and swallow counter and programmable counter start to count again.

FM reception employs the pulse swallow count system. AM reception does not employ the pulse swallow count system but employs the direct frequency division system and so only programmable counter is operated.

2. GENERAL DESCRIPTION OF LOGIC IC (IC901)

a) IC901  $\mu$ PD1714G-630

This IC includes PLL and controller is a C-MOS LSI for digital tuning of FM/MW/LW PLL frequency synthesizer system and controls such functions as FM/MW/LW automatic channel selection, preset memory and frequency digital display with Prescaler and liquid crystal digital frequency display driver. It is packed in a 64-pin flat package.

3. AUTO STOP

If count start, when High level signal is applied to SD terminal (Pin No. 15). Then IF frequency became 10.7MHz  $\pm$ 30kHz at FM or 450kHz  $\pm$ 5kHz at MW or 450kHz  $\pm$ 600Hz at LW. When SD and IF is agreed radio auto search tuning stops.

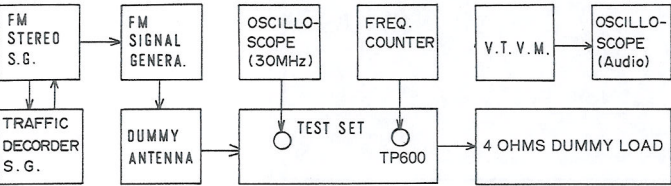


ALIGNMENT PROCEDURES

TRAFFIC DECORDER ALIGNMENT (SK. DK)

1. Test equipment required
- \* FM SIGNAL GENERATOR
  - \* FM STEREO SIGNAL GENERATOR
  - \* TRAFFIC DECORDER SIGNAL GENERATOR
  - \* FREQUENCY COUNTER
  - \* V.T.V.M.
  - \* OSCILLOSCOPE (30 MHz)
  - \* OSCILLOSCOPE (Audio)
  - \* 4 OHMS DUMMY LOAD

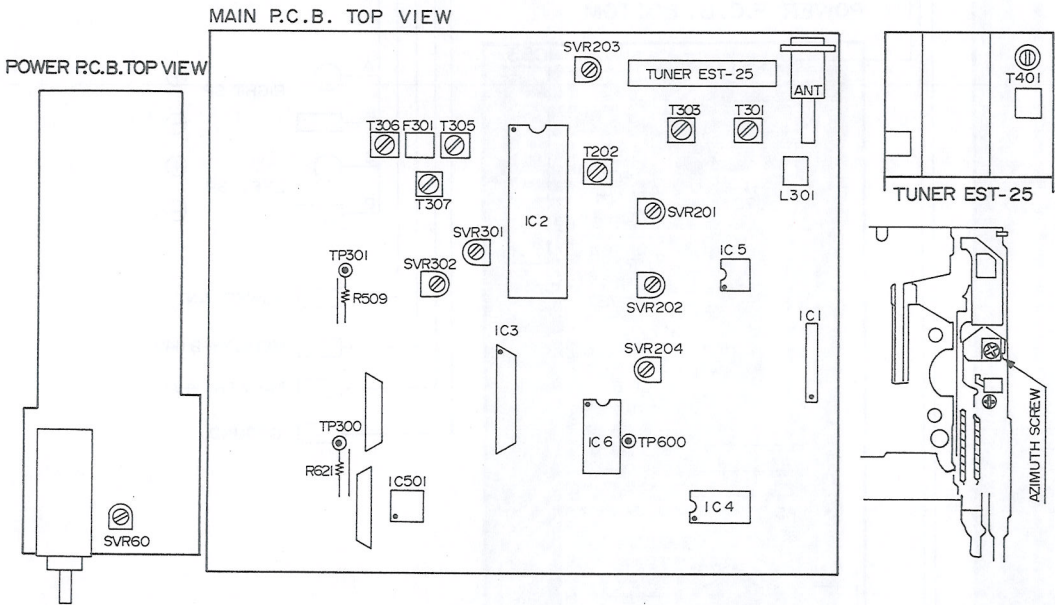
2. Traffic decorder test equipment set-up diagram



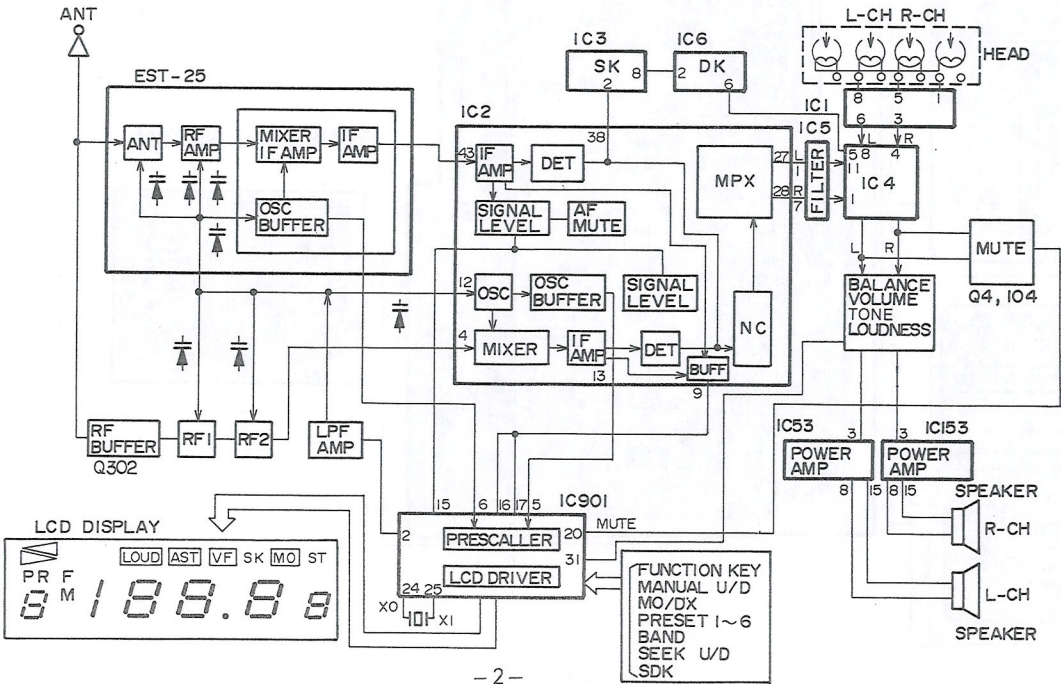
3. Alignment procedure

Step	Signal Input	FM Signal Generator	FM Stereo S.G.	Traffic Decord S.G.	Dial Setting of Radio	Adjustment
1	Through antenna dummy (Fig. 2)	No signal condition SDK button on position	—	—	—	Connect frequency counter to TP600 and common ground. Adjust SVR204 for frequency to be 125 ± 1 Hz.
2	—	—	19 kHz Pilot signal OFF 22.5 kHz dev.	SK 3.75 kHz dev. DK 30% mod. BK 60% mod.	98.00 MHz	When volume minimum and SDK button on position SVR 60 for output voltage to be 450 mV. (speaker terminal)

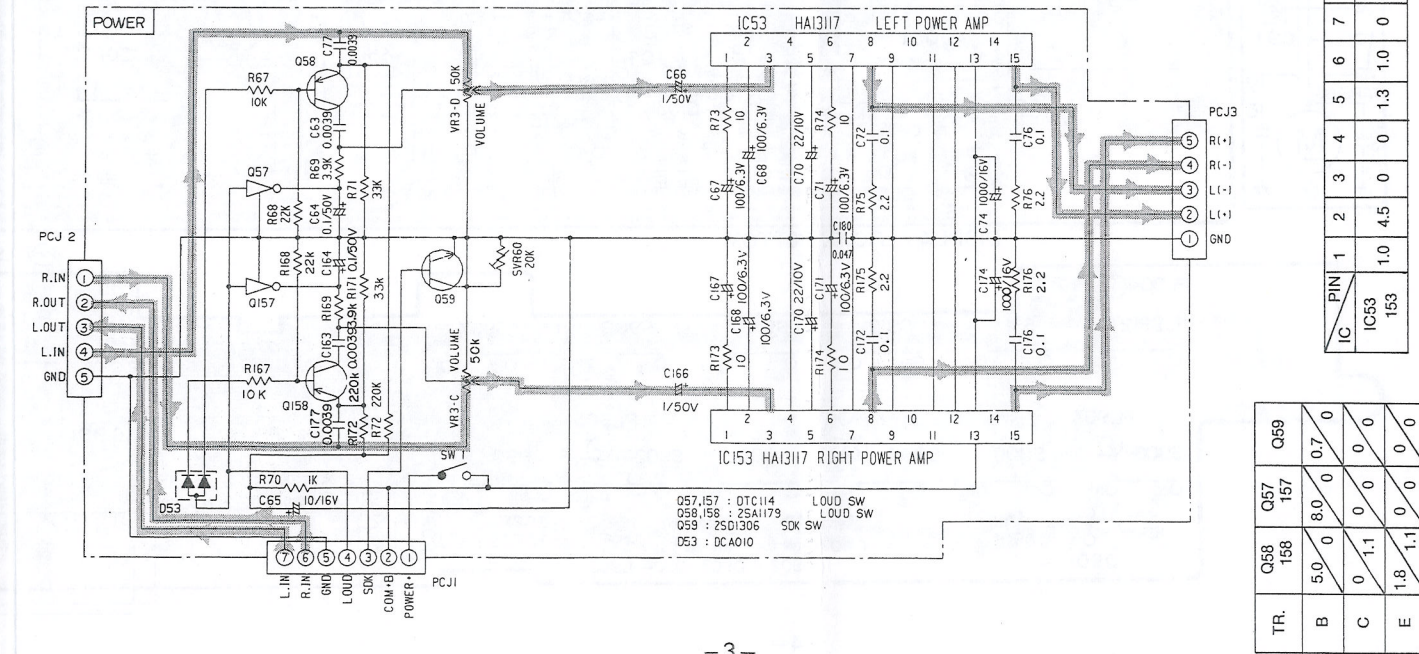
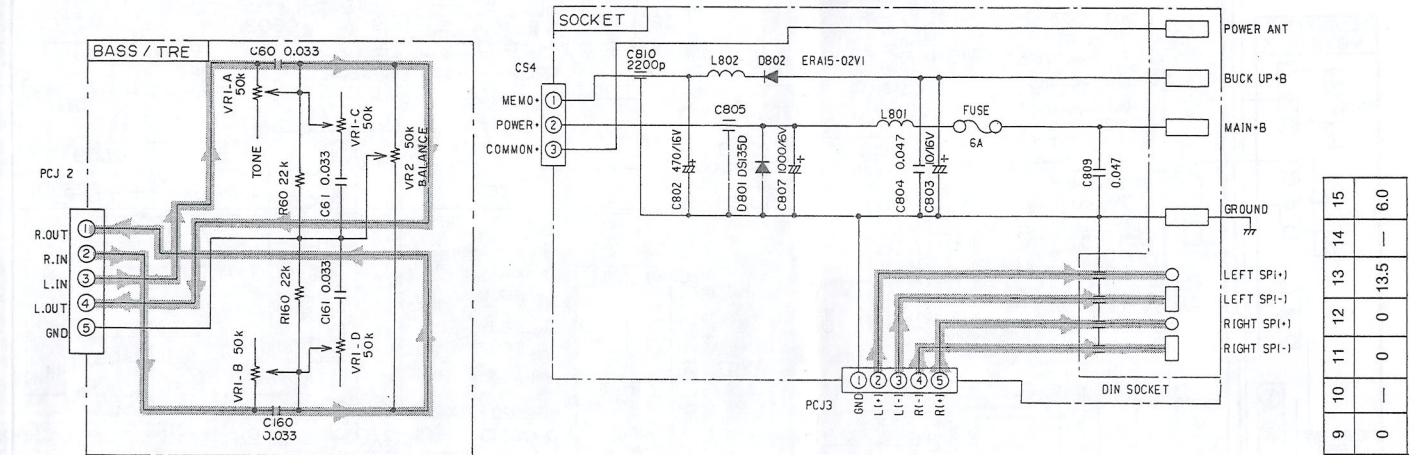
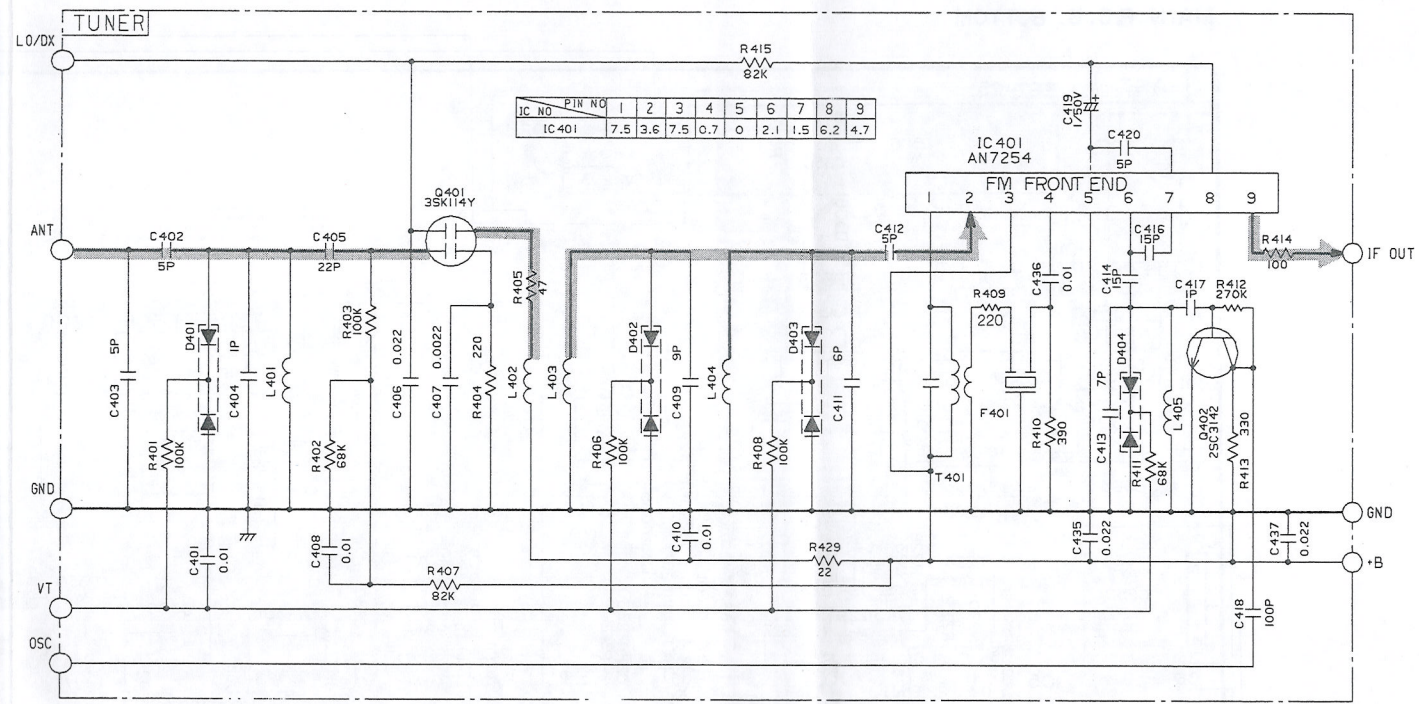
MAIN PARTS IDENTIFICATION ILLUSTRATION



BLOCK DIAGRAM



SCHEMATIC DIAGRAM



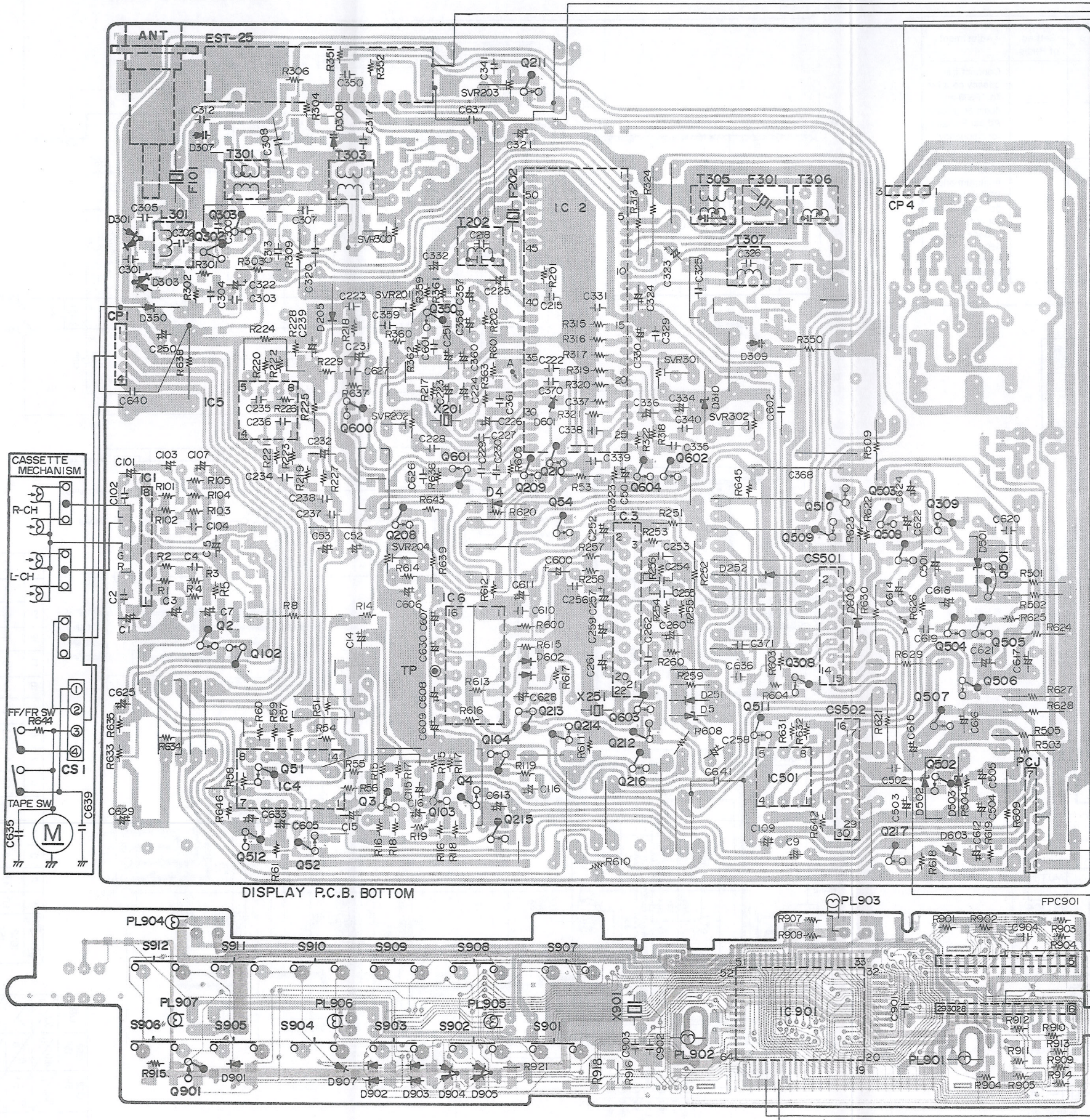
IC	PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
IC53	153	1.0	4.5	0	0	1.3	1.0	0	6.0	0	—	0	0	13.5	—	6.0

TR.	B	C	E
Q58	158	5.0	0
Q57	157	8.0	0
Q59	159	0	0
Q56	156	0	0
Q55	155	0	0
Q54	154	0	0
Q53	153	0	0
Q52	152	0	0
Q51	151	0	0
Q50	150	0	0
Q49	149	0	0
Q48	148	0	0
Q47	147	0	0
Q46	146	0	0
Q45	145	0	0
Q44	144	0	0
Q43	143	0	0
Q42	142	0	0
Q41	141	0	0
Q40	140	0	0
Q39	139	0	0
Q38	138	0	0
Q37	137	0	0
Q36	136	0	0
Q35	135	0	0
Q34	134	0	0
Q33	133	0	0
Q32	132	0	0
Q31	131	0	0
Q30	130	0	0
Q29	129	0	0
Q28	128	0	0
Q27	127	0	0
Q26	126	0	0
Q25	125	0	0
Q24	124	0	0
Q23	123	0	0
Q22	122	0	0
Q21	121	0	0
Q20	120	0	0
Q19	119	0	0
Q18	118	0	0
Q17	117	0	0
Q16	116	0	0
Q15	115	0	0
Q14	114	0	0
Q13	113	0	0
Q12	112	0	0
Q11	111	0	0
Q10	110	0	0
Q9	109	0	0
Q8	108	0	0
Q7	107	0	0
Q6	106	0	0
Q5	105	0	0
Q4	104	0	0
Q3	103	0	0
Q2	102	0	0
Q1	101	0	0

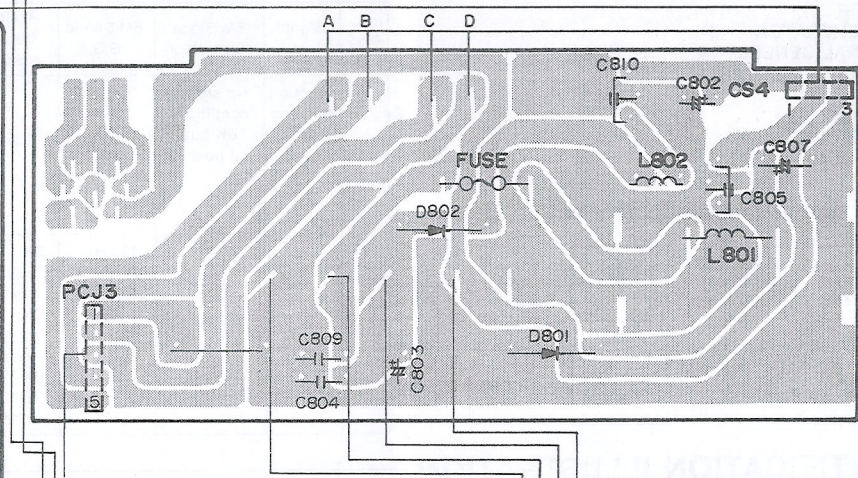


## WIRING DIAGRAM

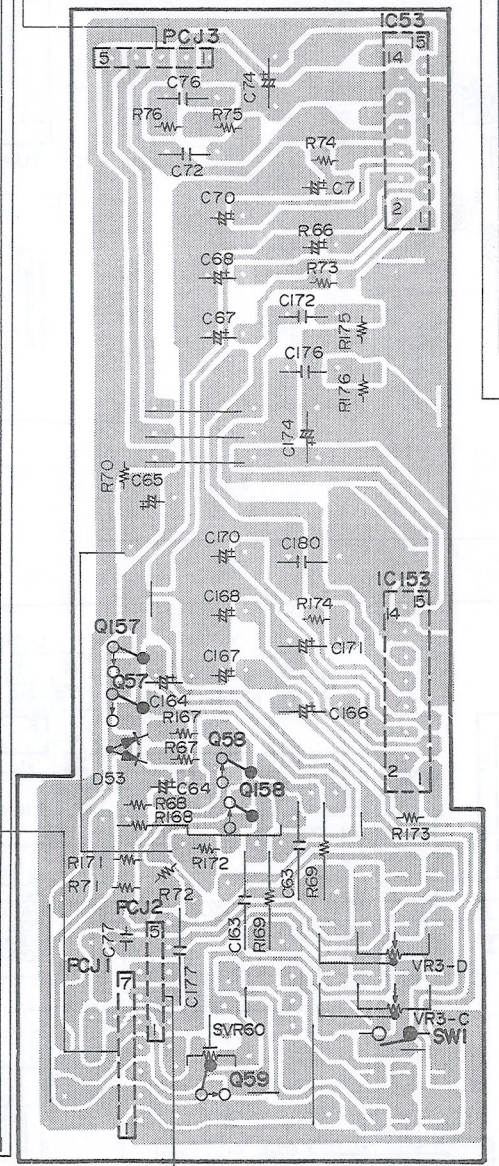
MAIN P.C.B. BOTTOM



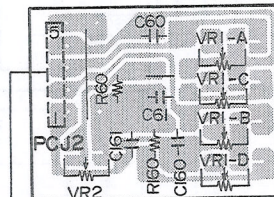
SOCKET P.C.B. BOTTOM



POWER P.C.B. BOTTOM



TONE P.C.B. BOTTOM



- 
- Diagram of the rear panel of the 1000 Series Tuner. The panel features several connection points:
- RIGHT SP:** Two terminals, A (top) and B (bottom). Terminal A is marked with a  $\oplus$  symbol, and terminal B is marked with a  $\ominus$  symbol.
  - LEFT SP:** Two terminals, C (top) and D (bottom). Terminal C is marked with a  $\oplus$  symbol, and terminal D is marked with a  $\ominus$  symbol.
  - POWER ANT:** A single terminal.
  - MEMORY+B (14V):** A single terminal.
  - MAIN+B (14V):** A single terminal.
  - GROUND:** A single terminal.



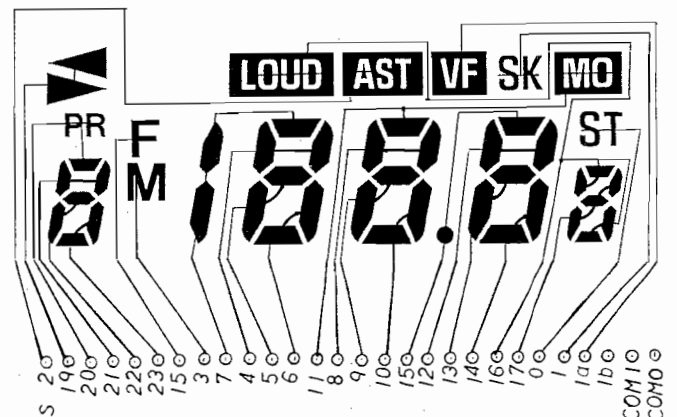
## CIRCUIT DESCRIPTION

DESCRIPTION (μPD1714G-630-12)

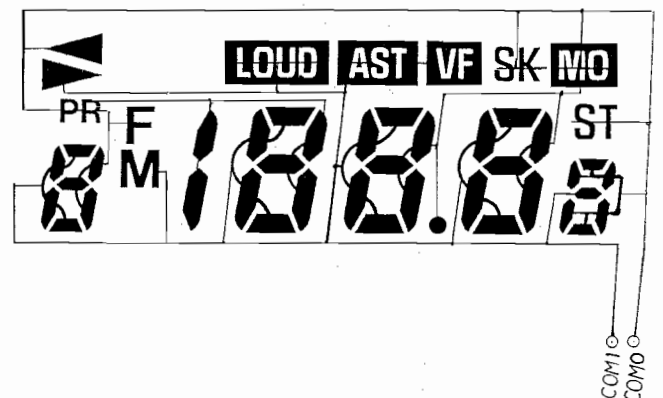
PIN NO.	SYMBOL		FUNCTIONAL EXPLANATION												
	IN	OUT													
1			NC												
2		E01	Phase detector output												
3			NC												
4	GND		GND												
5	AM		AM OSC input												
6	FM		FM OSC input												
7	CE1		Chip enable 1 (+5V)												
8	GND		GND												
9		CE2	Controller Data Line												
10		S0	Controller Data Line												
11		SC	Controller Data Line												
12	SI		Controller Data Line												
13	CE3		Chip enable 3												
14	SK		SK signal input												
15	SD		Channel reception Signal input for suto stop (Active High)												
16	AM IF		AM IF input												
17	FM IF		FM IF input												
18	TAIN		TAPE signal input												
19	TA. R		TAPE indication input												
20		MUTE	Mute signal output (Active Low)												
21		SDK	SDK signal output												
22		FM BAND	<table border="1"> <tr> <th>PIN</th><th>FM</th><th>MW</th><th>LW</th></tr> <tr> <td>FMB AND</td><td>HIGH</td><td>LOW</td><td>HIGH</td></tr> <tr> <td>AMB AND</td><td>LOW</td><td>HIGH</td><td>HIGH</td></tr> </table>	PIN	FM	MW	LW	FMB AND	HIGH	LOW	HIGH	AMB AND	LOW	HIGH	HIGH
PIN	FM	MW	LW												
FMB AND	HIGH	LOW	HIGH												
AMB AND	LOW	HIGH	HIGH												
23		AM BAND													
24	X0		Input side of inverter for OSC												
25	X1		Output side of inverter for OSC												
26	VDD		VDD (+5V)												
28	SE		SECURITY signal output												
27	DOLBY		DOLBY signal output												
29	ST/MO		STEREO MONO signal output												
30			NC												
31	LOUD		LOUDNESS signal output												
32		S23	LCD 23 output for LCD												
33		S22	LCD 22 output for LCD												
34		S21	LCD 21 output for LCD												
35		S20	LCD 20 output for LCD												
36		S19	LCD 19 output for LCD												
37		S18	LCD 18 output for LCD												
38		S17	LCD 17 output for LCD												
39		S16	LCD 16 output for LCD												
40		S15	LCD 15 output for LCD												
41		S14	LCD 14 output for LCD												
42		S13	LCD 13 output for LCD												
43		S12	LCD 12 output for LCD												
44		S11	LCD 11 output for LCD												
45		S10	LCD 10 output for LCD												
46		KS9	Key matrix return signal output.												
		S 9	LCD 9 output for LCD												
47		KS8	Key matrix return singal output												
		S 8	LCD 8 output for LCD												
48		S 7	LCD 7 output for LCD												
49		S 6	LCD 6 output for LCD												

PIN NO.	SYMBOL		FUNCTIONAL EXPLANATION
	IN	OUT	
50		S 5	LCD 5 output for LCD
51		KS4	Key matrix return signal output
		S 4	LCD 4 output for LCD
52		KS 3	Key matrix return signal output.
		S 3	LCD 3 output for LCD
53		KS2	Key matrix reurn signal output.
		S 2	LCD 2 output for LCD
54		KS1	Key matrix return signal output.
		S 1	LCD 1 output for LCD
55		KS 0	Key matrix return signal output.
		S 0	LCD 0 output for LCD
56		COM0	COMMON SIGNAL 0 output for LCD.
57		COM1	COMMON SIGNAL 1 output for LCD.
58			NC
59	K3		Key return signal input 3
60	K2		Key return signal input 2
61	K1		Key return signal input 1
62	K0		Key return signal input 0
63	AD		Signal mater Level input
64	ST		STEREO signal input

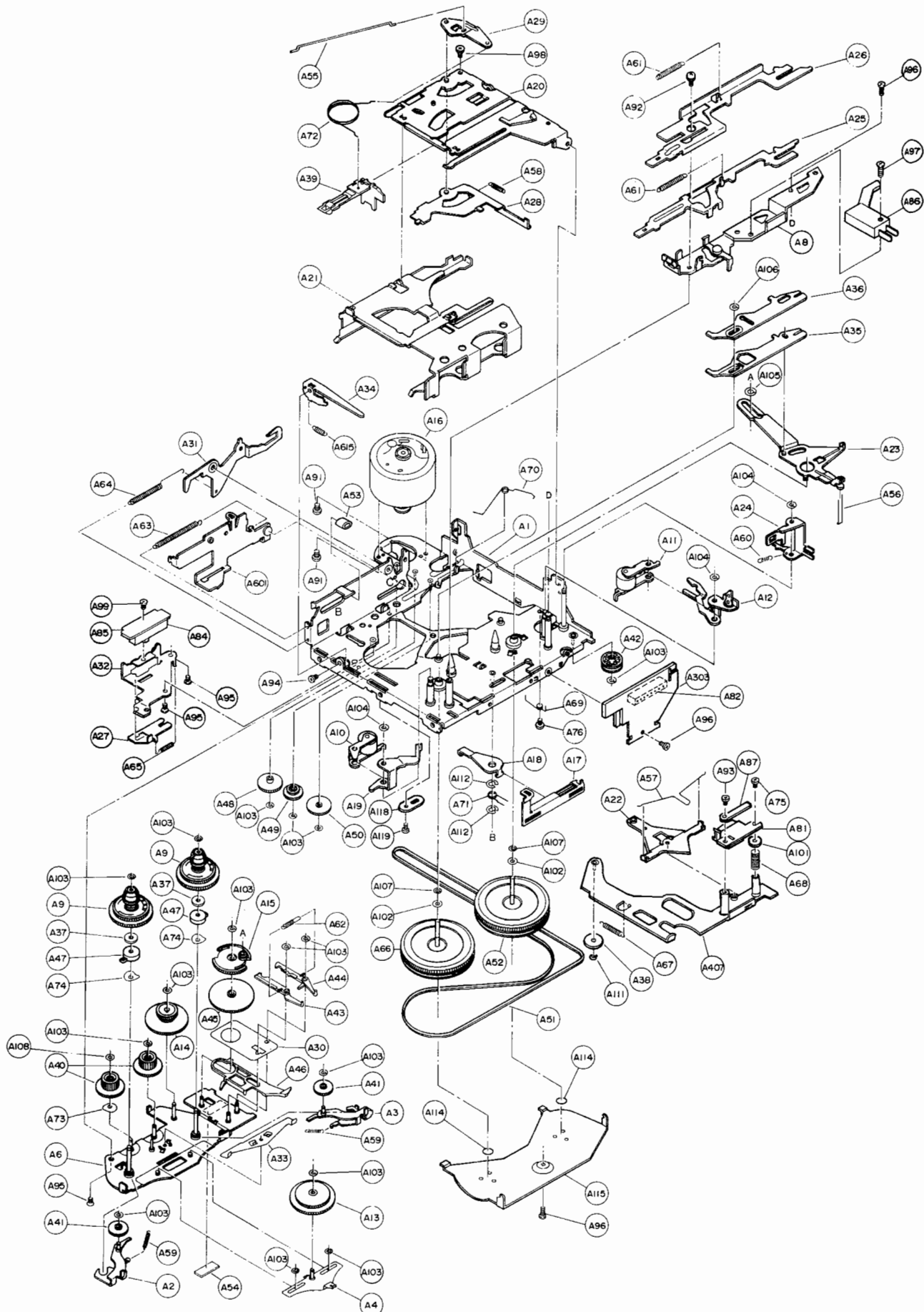
### SEGMENT



### COMMON



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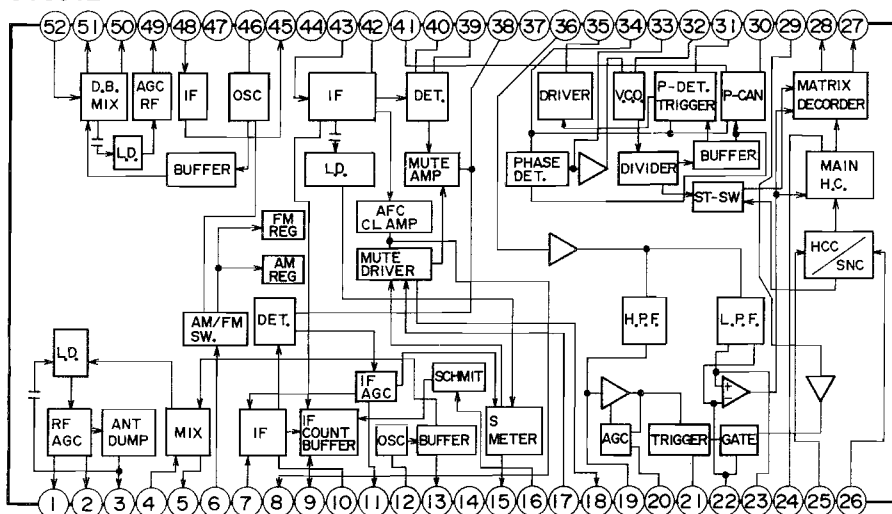
## PARTS LIST (CASSETTE MECHANISM)

Ref.No	PART No.	DESCRIPTION	Q'ty	Ref.No	PART No.	DESCRIPTION	Q'ty
<b>CASSETTE MECHANISM (R-S97295A)</b>				A56	TN-D166-E10	WIRE SPRING, ACTUATOR B	1
A1	632 501 7891	CHASSIS ASS'Y, MAIN	1	A57	TN-D197-E02	WIRE SPRING, PINCH ROLLER	1
A2	TN-D002-E11/1	PLATE ASS'Y, GEAR A	1	A58	TN-Z701-E27	COIL SPRING, 1	1
A3	TN-D002-E11/2	PLATE ASS'Y, GEAR B	1	A59	TN-Z701-E28	COIL SPRING, 1	2
A4	TN-D003-E05	PLATE ASS'Y, FR GEAR	1	A60	TN-Z701-E29	COIL SPRING, 1	1
A6	TN-D010-D02	REEL PLATE ASS'Y	1	A61	TN-Z701-E36	COIL SPRING, 1	2
A8	TN-D013-E08/2	PLATE ASS'Y, SIDE	1	A62	TN-Z702-E85	COIL SPRING, 2	1
A9	TN-D016-E12/2	REEL ASS'Y, GEAR	2	A63	TN-Z702-E86	COIL SPRING, 2	1
A10	TN-D017-E11/1	PINCH ROLLER ASS'Y, A	1	A64	TN-Z702-E87	COIL SPRING, 2	1
A11	TN-D017-E11/2	PINCH ROLLER ASS'Y, B	1	A65	632 501 7938	COIL SPRING, 2	1
A12	TN-D022-E09	LEVER ASS'Y, TURN	1	A66	TN-D145-DE04/1	FLYWHEEL	1
A13	TN-D040-E02	GEAR ASS'Y, FR	1	A67	632 501 7945	COIL SPRING, 2	1
A14	TN-D043-E01	GEAR ASS'Y, TAKE UP	1	A68	632 505 8771	COMPRESSION SPRING, 2	1
A15	TN-D044-E01	GEAR ASS'Y, CHANGE	1	A69	TN-Z722-E03	TORSION SPRING, 2	1
A16	R-S57368B	DC MOTOR	1	A70	TN-Z722-E04	TORSION SPRING, 2	1
A17	TN-D112-E06	CAM, FR B	1	A71	TN-Z723-E12	TORSION SPRING, 3	1
A18	TN-D112-E07	CAM, FR C	1	A72	TN-Z730-E01	TORSION SPRING, 10	1
A19	TN-D112-E10	CAM, FR D	1	A73	TN-P504-E05/3	PLATE SPRING	1
A20	632 501 7907	PLATE ASS'Y, ACTION	1	A74	TN-P504-E15	PLATE SPRING	2
A21	TN-D122-C03	CASE, CASSETTE	1	A75	632 505 8788	SPECIAL SCREW	1
A22	TN-D152-E06	LINK, CHANGE A	1	A76	TN-D230-E02	SPECIAL SCREW	1
A23	TN-D152-D03	LINK, CHANGE B	1	A81	R-S07636-1	PLAYBACK HEAD	1
A24	TN-D154-E07/1	PLATE ASS'Y, FR CANCELL	1	A82	TN-P061-D46	SLIDE SWITCH	1
A25	TN-D155-DE14/2	LEVER, FR A	1	A84	TN-P061-D45	SLIDE SWITCH	1
A26	TN-D155-DE15/2	LEVER, FR B	1	A85	632 501 7952	PC BOARD, SWITCH B	1
A27	632 501 7914	BRACKET ASS'Y, ACTUATOR A	1	A86	TN-MLS-15	SLIDE SWITCH, MICRO	1
A28	TN-D174-E07	PLATE, TURN A	1	A87	TN-D211-E03	WIRE BAND	1
A29	TN-D174-E08	PLATE, TURN B	1	A91	TN-M26X3PA	SPECIAL SCREW, PAN	2
A30	TN-D184-E02	SHEET, THRUST	1	A92	TN-M26X4.5SEM	SPECIAL SCREW, SEMS	1
A31	TN-D192-E02	ARM, ACTION	1	A93	TN-M2X5	SPECIAL SCREW, BIND	1
A32	632 501 7921	CHASSIS, SUB	1	A94	TN-M2X2S	SPECIAL SCREW	1
A33	TN-D201-E03	LEVER, SENSER A	1	A95	TN-M2X3S	SPECIAL SCREW	3
A34	TN-D202-E06	PLATE, LOCK B	1	A96	TN-M2X3ST	SPECIAL SCREW	3
A35	TN-D214-E03	LEVER, CHANGE A	1	A97	TN-M17X6	SPECIAL SCREW	1
A36	TN-D214-E04	LEVER, CHANGE B	1	A98	TN-M2X4ST	SPECIAL SCREW	1
A37	TN-D135-E06	FELT, FRICTION B	2	A99	632 501 7969	SPECIAL SCREW	1
A38	TN-D117-E16	ROLLER, HEAD PLATE B	1	A101	TN-Z200E03/58	SPECIAL WASHER	1
A39	TN-D121-C02	STOPPER, CASSETTE	1	A102	TN-Z204-E01/6	SPECIAL WASHER, PS	2
A40	TN-D146-E09	GEAR, TAKE UP C	2	A103	TN-Z205-E01/1	SPECIAL WASHER, PS	16
A41	TN-D146-E10	GEAR, TAKE UP D	2	A104	TN-Z205-E01/3	SPECIAL WASHER, PS	3
A42	TN-D151-E06/2	PULLEY, IDLE	1	A105	TN-Z205-E01/7	SPECIAL WASHER, PS	1
A43	TN-D156-E05	CAM, HOOK A	1	A106	TN-Z205-E01/8	SPECIAL WASHER, PS	1
A44	TN-D156-E06	CAM, HOOK B	1	A107	TN-Z204-E01/15	SPECIAL WASHER, PS	2
A45	TN-D196-E02	GEAR, CHANGE A	1	A108	TN-Z204E01/13	SPECIAL WASHER, PS	1
A46	TN-D201-D04	LEVER, SENSER B	1	A111	TN-Z100E01/01	RING, E	1
A47	TN-D201-E04	LEVER, SENSER C	2	A112	TN-Z100E01/08	RING, E	2
A48	TN-D212-E08	GEAR, IDLE A	1	A114	TN-D183-E01	BRACKET SHAFT, THRUST	2
A49	TN-D212-E11	GEAR, IDLE B	1	A115	TN-D159-E06	BRACKET, FLYWHEEL	1
A50	TN-D212-E10	GEAR, IDLE C	1	A303	TN-PC-249	PC BOARD, SWITCH A	1
A51	TN-D144-E11	BELT	1	A407	632 505 8795	PLATE ASS'Y, HEAD	1
A52	TN-D145-DE03/1	FLYWHEEL	1	A601	632 501 7976	LEVER ASS'Y, EJECT	1
A53	TN-CR60.3-5-6	SLEEVE, TUBE	1	A615	632 501 7983	COIL SPRING, 2	1
A54	TN-D135-E08	FELT	1	A118	R-1172356A	BRACKET, SHAFT	1
A55	TN-D165-E02	WIRE SPRING	1	A119	411 034 6409	SCR FLT 3X6	1

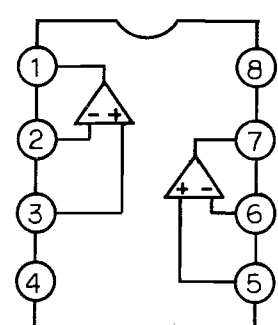
NOTES: 1. Part orders must contain Model Number, Part Number and Description.  
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

## IC FUNCTIONS

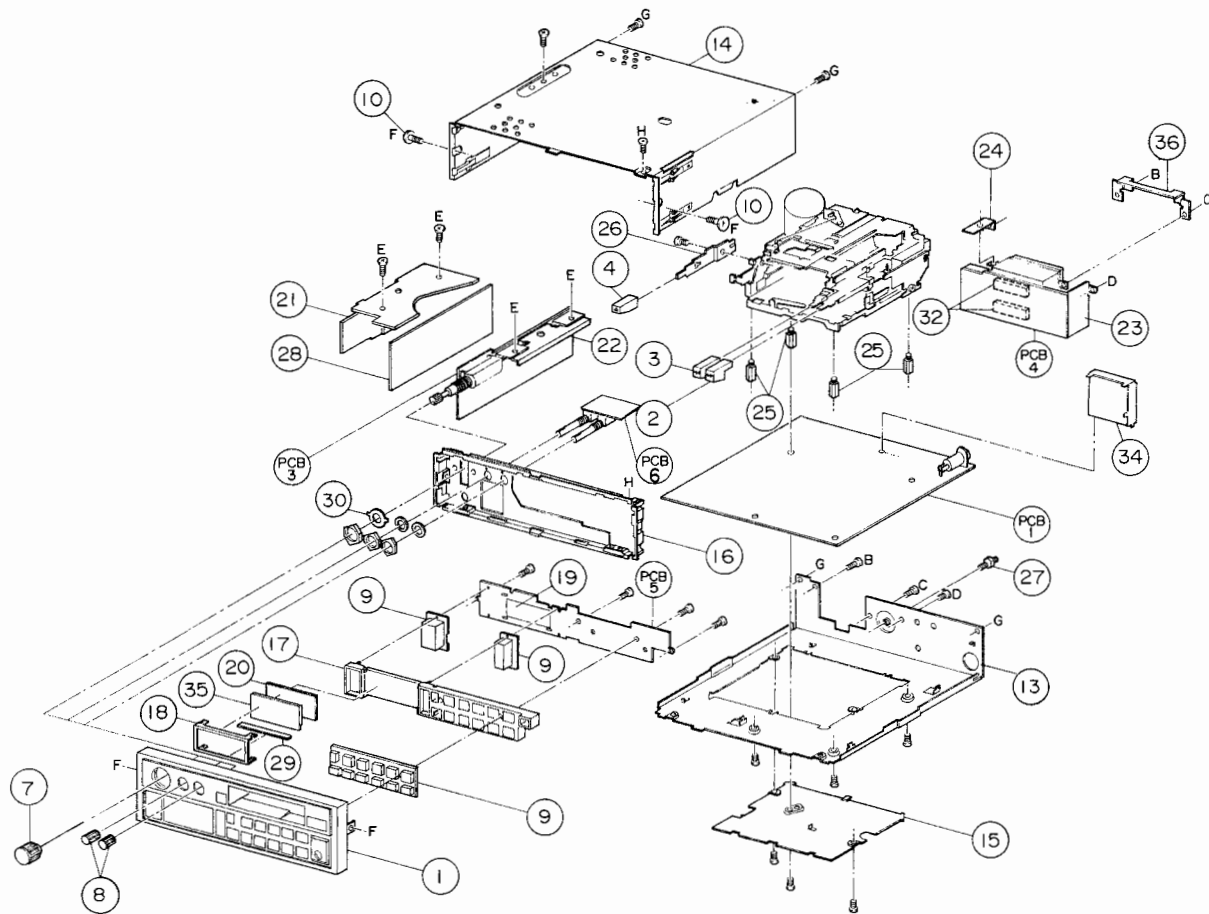
### ST3012



### LA6458D



## EXPLODED VIEW (CABINET & CHASSIS)



## PARTS LIST

Ref.No	PART No.	DESCRIPTION	Q'ty
<b>INDIVIDUAL</b>			
	R-4079910	INDIVIDUAL CARTON CASE	1
	R-4177152	STYRO-FOAM CUSHION	2
	R-357676	POLYETHYLENE BAG	1
<b>ACCESSORY</b>			
	R-47701963	INSTRUCTION BOOK	1
	R-47701213	GUARANTEE CARD	1
	R-47701958	STICKER	2
	R-S874377	BRACKET ASS'Y	1
	R-1572388	WIRE SPRING, SHAFT	2
	R-S17558	FUSE, 6A 125V	1
	R-357527-1	POLYETHYLENE BAG	1
	R-357528-1	POLYETHYLENE BAG	1
<b>CABINET</b>			
1	R-A708604	NOSE PANEL ASS'Y	1
2	R-3978585-1	KNOB, F.F.	1
3	R-3978586-1	KNOB, REWIND	1
4	R-3978587-1	KNOB, EJECT	1
7	R-3977310	KNOB, VOLUME	1
8	R-3976442A	KNOB, VOLUME	2
9	R-4471323-6	RUBBER SHEET	1
10	R-1572793	SPECIAL SCREW	2
	412 016 5403	SPECIAL SCREW	4
	411 047 5604	SCR PAN+FLG 3X12	1
	R-47701587	CAUTION LABEL, CODE	1
	R-47701964	RATING LABEL	1
	R-4777245	COVER	1
	R-4777421	CAUTION LABEL	1
	R-4777117	LABEL	1
	R-4779010	CAUTION LABEL	1
	R-47701795	CAUTION LABEL, SHIPPING	1

Ref.No	PART No.	DESCRIPTION	Q'ty
<b>CHASSIS</b>			
13	R-1277428	METAL CASING	1
14	632 503 0968	TOP LID ASS'Y	1
15	R-1276779A	BOTTOM LID	1
16	R-1276567-1	FRONT CHASSIS	1
	411 028 5906	SCR S-TPG PAN 2.6X5	6
17	R-3871076A	REFLECTOR, LCD	1
18	R-1277210	BRACKET, LCD	1
19	R-47701040	SHEET, LCD	1
20	R-47701039	REFLECTOR, LCD	1
21	R-2674151-3	HEAT SINK	1
22	R-1277213	BRACKET, IC	1
23	R-1276538	SHIELD CASE	1
24	R-1277427	BRACKET, SOCKET	1
25	R-1573142	SHAFT, MECHANISM	4
26	R-1277240A	LEVER, EJECT	1
	411 040 0507	SCR PAN 2.6X3	1
27	R-1571833A	SPECIAL SCREW	1
28	R-4177341	COVER, HEAT SINK	1
29	R-4471092A	CONNECTOR	1
30	R-1271053	SPECIAL WASHER, VOLUME	1
	R-437710-9	CUSHION, COVER, LCD	1
32	R-4471463A	CUSHION, DIN SOCKET	2
	R-4774737	COVER, PL	2
	R-4775228	COVER, VOLUME KNOB	1
36	R-1277212-1	BRACKET, SOCKET	1
	411 031 1209	SCR BIN 2.6X5, IC	2
	411 031 7508	SCR BIN 3X5, HEAT SINK	1
	411 028 5906	SCR S-TPG PAN 2.6X5	10
	411 028 5906	MECHA,BOTTOM,BRACKE	1
		SCR S-TPG PAN 2.6X5	1
		DIN SOCKET	1
	R-357339	POLYETHYLENE BAG	1
		SERIAL NUMBER LABEL	1

NOTES: 1. Part orders must contain Model Number, Part Number and Description.  
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.



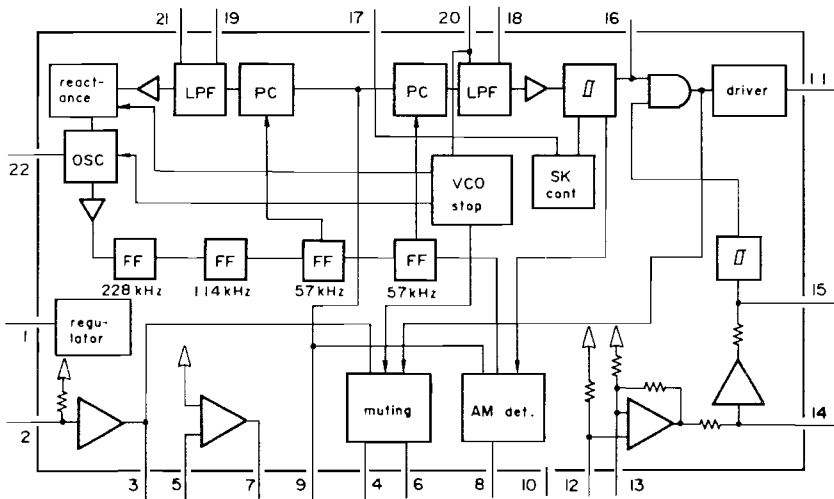
Ref.No	PART No.	DESCRIPTION	Q'ty
R225	401 027 0309	CARBON 47K JA 1/6W	1
R309	401 025 1308	CARBON 150 JA 1/6W	1
R303,502	401 027 2303	CARBON 560 JA 1/6W	2
R505	401 025 7409	CARBON 220 JA 1/6W	1
R251,8	401 024 6403	CARBON 10 JA 1/6W	2
R503,624	401 024 7004	CARBON 1K JA 1/6W	2
R638,324	401 024 7004	CARBON 1K JA 1/6W	2
R623,629	401 024 7400	CARBON 10K JA 1/6W	2
R313,621	401 024 7400	CARBON 10K JA 1/6W	2
R639	401 026 7002	CARBON 3.9K JA 1/6W	1
R350	401 024 7707	CARBON 100K JA 1/6W	1
R509	401 027 5502	CARBON 6.8K JA 1/6W	1
R259	401 026 1307	CARBON 27K JA 1/6W	1
R627,628	401 026 1000	CARBON 2.7K JA 1/6W	2
R302,635	401 038 6505	MT-GLAZE 47K JA 1/10W	2
R256,603	401 038 6505	MT-GLAZE 47K JA 1/10W	2
R646	401 038 6505	MT-GLAZE 47K JA 1/10W	1
R4,104	401 037 5707	MT-GLAZE 100K JA 1/10W	2
R359,56	401 037 5707	MT-GLAZE 100K JA 1/10W	2
R58	401 037 5707	MT-GLAZE 100K JA 1/10W	1
R1,101	401 037 9101	MT-GLAZE 180 JA 1/10W	2
R504,631	401 037 5608	MT-GLAZE 10K JA 1/10W	2
R632,218	401 037 5608	MT-GLAZE 10K JA 1/10W	2
R219,223	401 037 5608	MT-GLAZE 10K JA 1/10W	2
R222,315	401 037 5608	MT-GLAZE 10K JA 1/10W	2
R316,54	401 037 5608	MT-GLAZE 10K JA 1/10W	2
R19,119	401 037 5608	MT-GLAZE 10K JA 1/10W	2
R304,306	401 038 2309	MT-GLAZE 270K JA 1/10W	2
R3,103	401 038 0909	MT-GLAZE 220K JA 1/10W	2
R625,613	401 038 0701	MT-GLAZE 2.2K JA 1/10W	2
R626	401 038 6307	MT-GLAZE 470 JA 1/10W	1
R352,619	401 038 6505	MT-GLAZE 47K JA 1/10W	2
R319,645	401 038 6505	MT-GLAZE 47K JA 1/10W	2
R317	401 038 6505	MT-GLAZE 47K JA 1/10W	1
R55,59	401 037 5707	MT-GLAZE 100K JA 1/10W	2
R60,57	401 037 5707	MT-GLAZE 100K JA 1/10W	2
R615	401 037 5707	MT-GLAZE 100K JA 1/10W	1
R228,601	401 037 5400	MT-GLAZE 1K JA 1/10W	2
R14,636	401 037 5400	MT-GLAZE 1K JA 1/10W	2
R637,229	401 037 5400	MT-GLAZE 1K JA 1/10W	2
R253	401 037 9200	MT-GLAZE 1.8K JA 1/10W	1
R616,643	401 037 5608	MT-GLAZE 10K JA 1/10W	2
R642,5	401 037 5608	MT-GLAZE 10K JA 1/10W	2
R105	401 037 5608	MT-GLAZE 10K JA 1/10W	1
R254	401 038 2002	MT-GLAZE 270 JA 1/10W	1
R255	401 038 5003	MT-GLAZE 390 JA 1/10W	1
R258,220	401 038 6406	MT-GLAZE 4.7K JA 1/10W	2
R221,611	401 038 6406	MT-GLAZE 4.7K JA 1/10W	2
R201	401 038 3504	MT-GLAZE 330 JA 1/10W	1
R360	401 038 3702	MT-GLAZE 33K JA 1/10W	1
R362	401 037 7909	MT-GLAZE 1.5K JA 1/10W	1
R361	401 038 2101	MT-GLAZE 2.7K JA 1/10W	1
R363	401 038 3801	MT-GLAZE 330K JA 1/10W	1
R217,318	401 038 7700	MT-GLAZE 5.6K JA 1/10W	2
R320,61	401 038 9209	MT-GLAZE 6.8K JA 1/10W	2
R614,321	401 038 5102	MT-GLAZE 3.9K JA 1/10W	2
R17,117	401 038 5102	MT-GLAZE 3.9K JA 1/10W	2
R257	401 038 5102	MT-GLAZE 3.9K JA 1/10W	1
R617,600	401 038 0800	MT-GLAZE 22K JA 1/10W	2
R260	401 038 0800	MT-GLAZE 22K JA 1/10W	1
R633	401 037 6803	MT-GLAZE 12K JA 1/10W	1
R2,102	401 037 6803	MT-GLAZE 12K JA 1/10W	2
R322,202	401 037 8005	MT-GLAZE 15K JA 1/10W	2
R604	401 037 8005	MT-GLAZE 15K JA 1/10W	1
R323	401 038 2200	MT-GLAZE 27K JA 1/10W	1
R15,115	401 038 6604	MT-GLAZE 470K JA 1/10W	2
R301	401 038 6604	MT-GLAZE 470K JA 1/10W	1
R16,116	401 037 6902	MT-GLAZE 120K JA 1/10W	2
	401 037 5004	MT-GLAZE 0.000 ZA 1/10W	8
R351	401 038 0503	MT-GLAZE 22 JA 1/10W	1
R18,118	401 037 6704	MT-GLAZE 1.2K JA 1/10W	2
R226,227	401 038 9308	MT-GLAZE 68K JA 1/10W	2
R634	401 037 9408	MT-GLAZE 180K JA 1/10W	1
R622,605	401 035 5204	MT-GLAZE 10K JA 1/6W	2
R612,51	401 037 5103	MT-GLAZE 10 JA 1/10W	2
R620	401 036 6507	MT-GLAZE 3.9K JA 1/6W	1
	401 035 4108	MT-GLAZE 0.000 ZA 1/6W	8
<b>POWER P.C.B. ASSEMBLY</b>			
PCB3	632 500 8172	PC BOARD ASS'Y, POWER	1
PCJ2	R-S370325-8	PC JOINER, 80MM 5P	1
SW1,VR3	632 501 1677	ROTARY VOLUME, 50KBX2	1
IC53,153	409 066 1608	IC HA13117	2

Ref.No	PART No.	DESCRIPTION	Q'ty
C72,172	403 067 5603	MT-COMPO 0.1U J 50V	2
C76,176	403 067 5603	MT-COMPO 0.1U J 50V	2
C74,174	403 042 4805	ELECT 1000U M 16V	2
C71,171	403 038 1603	ELECT 100U M 6.3V	2
C68,168	403 038 1603	ELECT 100U M 6.3V	2
C67,167	403 038 1603	ELECT 100U M 6.3V	2
C70,170	403 040 1707	ELECT 22U M 10V	2
C66,166	403 049 0008	ELECT 1U M 50V	2
C64,164	403 047 8402	ELECT 0.1U M 50V	2
C65	403 041 8804	ELECT 10U M 16V	1
C180	403 004 1002	CERAMIC 0.047U M 25V	1
R69,169	401 026 7002	CARBON 3.9K JA 1/6W	2
R79	401 025 7805	CARBON 2.2K JA 1/6W	1
R168	401 025 8208	CARBON 22K JA 1/6W	1
Q58,158	405 002 6706	TR 2SA1179-M6	2
Q57,157	405 000 3608	TR DTC114YK	2
Q59	405 035 6506	TR 2SD1306N-E	1
D53	407 004 0102	DIODE DCA010	1
SVR60	R-R1107154-4	PRESET RESISTOR, 20K	1
C63,163	403 001 7106	CERAMIC 3900P M 16V	2
C177	403 001 7106	CERAMIC 3900P M 16V	1
C77	403 073 4201	CERAMIC 3900P K 50V	1
	401 035 4108	MT-GLAZE 0.000 ZA 1/6W	2
R75,175	401 036 0406	MT-GLAZE 2.2 KA 1/6W	2
R76,176	401 036 0406	MT-GLAZE 2.2 KA 1/6W	2
R73,173	401 037 5103	MT-GLAZE 10 JA 1/10W	2
R74,174	401 037 5103	MT-GLAZE 10 JA 1/10W	2
R70	401 037 5400	MT-GLAZE 1K JA 1/10W	1
R67,167	401 035 5204	MT-GLAZE 10K JA 1/6W	2
R68	401 038 0800	MT-GLAZE 22K JA 1/10W	1
R171,71	401 038 3702	MT-GLAZE 33K JA 1/10W	2
R72,172	401 038 0909	MT-GLAZE 220K JA 1/10W	2
	401 037 5004	MT-GLAZE 0.000 ZA 1/10W	2
<b>tone P.C.B. ASSEMBLY</b>			
PCB6	632 500 8141	PC BOARD ASS'Y, TONE	1
VR1	R-R1107192A	ROTARY VOLUME, 50KX4	1
VR2	R-R1107194A	ROTARY VOLUME, 50K	1
C61,161	403 068 3301	CERAMIC 0.033U M 25V	2
C60,160	403 068 3301	CERAMIC 0.033U K 25V	2
	401 035 4108	MT-GLAZE 0.000 ZA 1/6W	1
R60,160	401 038 0800	MT-GLAZE 22K JA 1/10W	2
<b>SOCKET P.C.B. ASSEMBLY</b>			
PCB4	632 500 8196	PC BOARD ASS'Y, SOCKET	1
	R-S17558	FUSE, 6A 125V	1
	R-S27933-1	SOCKET, DIN POWER, SP	1
CS4	632 501 2230	CORD, 120MM	1
PCJ3	R-S370325-6	PC JOINER, 60MM 5P	1
L802	R-W17068	CHOKO COIL, 3MH	1
L801	R-W67178	CHOKO COIL	1
C805,810	404 030 8102	CERAMIC 2200P M 100V	2
C804,809	403 074 3005	CERAMIC 0.047U Z 50V	2
C803	403 042 0401	ELECT 10U M 16V	1
C802	403 044 3004	ELECT 470U M 16V	1
C807	403 042 5901	ELECT 1000U M 16V	1
D801	407 005 1603	DIODE DS135D	1
D802	407 005 8800	DIODE ERA15-02V1	1
<b>DISPLAY P.C.B. ASSEMBLY</b>			
PCB5	632 500 8202	PC BOARD ASS'Y, DISPLAY	1
X901	R-S17538	CRYSTAL OSCILLATOR	1
FPC901	R-S370135A	FPC BOARD	1
S901-912	R-S470217	PUSH SWITCH	12
IC901	410 033 2108	IC UPD1714G-630-12	1
D907	407 069 4909	DIODE DSB010	1
Q901	405 002 6706	TR 2SA1179-M6	1
D904,905	407 004 0607	DIODE DCB010	2
D902,903	407 065 2909	DIODE DWA010	2
D901	407 009 6208	DIODE RLS-73TE-11	1
C902,903	403 014 4000	CERAMIC 18P J 50V	2
C904	403 069 1801	CERAMIC 1000P K 50V	1
C901	403 068 4407	CERAMIC 0.047U K 25V	1
R921	401 037 5004	MT-GLAZE 0.000 ZA 1/10W	1
R916,918	401 035 4108	MT-GLAZE 0.000 ZA 1/6W	2
R905-908	401 037 3406	MT-GLAZE 82 JA 1/6W	4
R914	401 035 4603	MT-GLAZE 100 JA 1/6W	1
R909-913	401 035 5204	MT-GLAZE 10K JA 1/6W	5
R901-904	401 035 5402	MT-GLAZE 100K JA 1/6W	4
R915	401 035 5402	MT-GLAZE 100K JA 1/6W	1

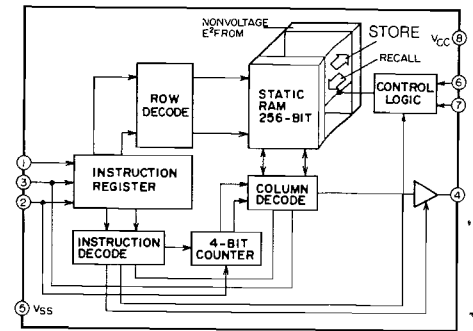
NOTES: 1. Part orders must contain Model Number, Part Number and Description.  
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## IC FUNCTIONS

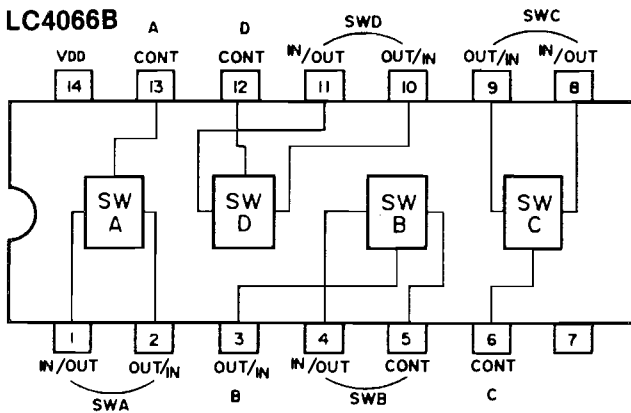
**LA2220**



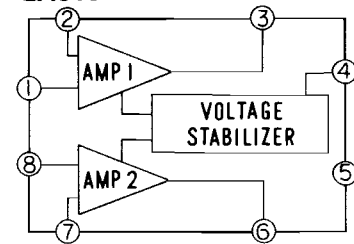
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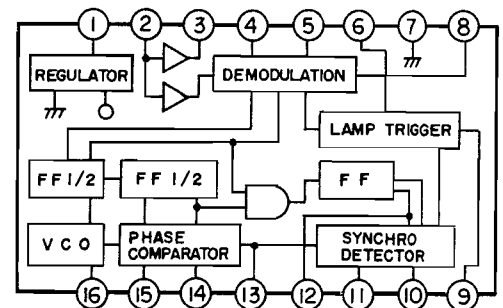
**LC4066B**



**LA3161**



**LA3361**



# PARTS LIST (CONTINUED)

Ref.No	PART No.	DESCRIPTION	Q'ty	Ref.No	PART No.	DESCRIPTION	Q'ty
<b>CHASSIS ELECTRICAL</b>							
	632 505 8078	CASSETTE MECHANISM ASS'Y, NO SERVICE	1	C615,103	403 038 1603	ELECT 100U M 6.3V	2
CS1	R-S37874-8	CORD, 80MM 4P	1	C616,501	403 039 6508	ELECT 100U M 10V	2
R644	401 026 9907	CARBON 4.7K JA 1/6W	1	C332	403 039 6508	ELECT 100U M 10V	1
C635,639	403 004 1002	CERAMIC 0.047U M 25V	2	C621	403 043 9106	ELECT 47U M 16V	1
34	R-S874551	TUNER	1	C612	403 039 2104	ELECT 47U M 6.3V	1
PL901-907	R-S17596	PILOT LAMP, 5V 60MA	7	C322	403 039 2609	ELECT 47U M 6.3V	1
35	632 500 4013	LIQUID CRYSTAL DISPLAY	1	C324,336	403 040 2209	ELECT 22U M 10V	2
<b>MAIN P.C.B. ASSEMBLY</b>				C330,53,	403 049 0800	ELECT 1U M 50V	14
PCB1	632 500 8134	PC BOARD ASS'Y, MAIN	1	52,1,15,			
TP300	R-257196-1	TERMINAL	1	101,625,			
CS501,502	R-377186-15	HOUSING, 15P	2	115,7,9,			
ANT	R-S27192-1A	SOCKET, ANTENNA } or	1	107,630,			
CP4	R-S27192-6	SOCKET, ANTENNA }	1	223,109			
CP1	R-S27781-3	PLUG, 3P	1	C334	403 047 9003	ELECT 0.1U M 50V	1
PCJ1	R-S27781-4	PLUG, 4P	1	C257	403 048 6902	ELECT 0.47U M 50V	1
F301	R-S370327-8	PC JOINER, 80MM 7P	1	C259	403 048 4809	ELECT 0.33U M 50V	1
F202	R-S17637	CERAMIC FILTER, 450KHz	1	C261,607	403 047 0604	ELECT 4.7U M 25V	5
X201	R-S17570-1	CERAMIC FILTER, 10.700MHz	1	251,323,			
X251	R-S17858	CERAMIC OSCILLATOR, 19KHz	1	600			
F101	R-S17938	CERAMIC OSCILLATOR, 57KHz	1	C225,226	403 050 0509	ELECT 2.2U M 50V	2
Q501	R-W17080	PACKED C&L	1	C250	403 050 0509	ELECT 2.2U M 50V	1
IC2	405 073 5202	TR 2SD2012	1	C358,360,	403 041 9405	ELECT 10U M 16V	9
IC1	409 140 1807	IC ST3012	1	232,231,			
IC4	409 016 7902	IC LA3161	1	239,618			
IC5	409 020 8704	IC LC4066B	1	629,605,			
IC3	409 018 4305	IC LA6458D	1	357			
IC6	409 016 6301	IC LA2220	1	C224,16	403 048 2508	ELECT 0.22U M 50V	2
IC501	409 016 9500	IC LA3361	1	C116	403 048 2508	ELECT 0.22U M 50V	1
L301	409 143 2603	IC S-2444R01	1	C260,50	403 038 5403	ELECT 22U M 6.3V	2
T301,303	R-W17124	CHOKE COIL, 140μH	1	C613	403 038 5403	ELECT 22U M 6.3V	1
T305	R-W577073	IF TRANSFORMER, M.W.	2	C608,628	403 038 9005	ELECT 33U M 6.3V	2
T306	R-W577126	IF TRANSFORMER	1	C609,3	403 038 2006	ELECT 100U M 6.3V	2
T307	R-W577125	IF TRANSFORMER	1	C633	403 038 2006	ELECT 100U M 6.3V	1
T202	R-W87035	OSC COIL	1	C611,14	403 039 7307	ELECT 100U M 10V	2
D307-309	R-W577111-1	IF TRANSFORMER, FM	1	C5	403 039 7307	ELECT 100U M 10V	1
	407 000 5507	VARACTOR DI SVC321SP-C-3	3/3	C252	403 040 3701	ELECT 220U M 10V	1
D503	407 098 0903	DO NOT USE DIODES FROM	1	C258	403 038 6301	ELECT 220U M 6.3V	1
D502	407 050 4703	DIFFERENT BAGS BUT A PAIR	1	C503	403 039 3507	ELECT 470U M 6.3V	1
D501	407 050 7704	OF DIODES FROM A SAME BAG	1	C301,312	403 015 3705	CERAMIC 2P C 50V	2
D310	407 052 2004	ZENER DIODE HZS6B2L	1	C636	403 026 2902	CERAMIC 47P J 50V	1
D5	407 050 3607	ZENER DIODE GZA5.1X	1	C371	403 069 1702	CERAMIC 1000P K 50V	1
D251,252	407 012 4406	ZENER DIODE GZA9.1Y	1	C601	403 070 5508	CERAMIC 1200P K 50V	1
205,4,350		ZENER DIODE HZ3ALL	1	C4,104	403 070 6703	CERAMIC 0.012U K 50V	2
D600	407 012 4406	ZENER DIODE GZA4.7X	1	C230,229	403 070 6703	CERAMIC 0.012U K 50V	2
D301,303	407 004 1000	DIODE 1SS133	5	C359	403 073 0005	CERAMIC 3300P K 50V	1
D602	407 065 2909	DIODE DCC010	1	C302,304	403 072 1607	CERAMIC 0.022U K 50V	2
D603	407 004 8009	DIODE DWA010	1	C317,300	403 072 1607	CERAMIC 0.022U K 50V	2
D601	407 004 5602	DIODE DSB015	1	C329,331	403 072 1607	CERAMIC 0.022U K 50V	2
Q302	405 068 0809	DIODE DSA015	1	C228,313	403 072 1607	CERAMIC 0.022U K 50V	2
Q2,102	405 068 0908	TR 2SK932-22 } or	1	C341	403 072 1607	CERAMIC 0.022U K 50V	1
Q4,104	405 035 6506	TR 2SK932-23 }	1	C350,307,	403 130 3109	CERAMIC 0.047U K 50V	9
Q303,504	405 015 8902	TR 2SD1306N-E	2	502,610,			
Q505	405 015 8902	TR 2SD1306N-E	2	222,256,			
Q350,600	405 015 8704	TR 2SC2812-L7	2	370,215,			
Q601,3	405 015 8704	TR 2SC2812-L6	2	340			
Q103,502	405 015 8704	TR 2SC2812-L6	2	C619	403 073 4409	CERAMIC 0.039U K 50V	1
Q308,512	405 015 8704	TR 2SC2812-L6	2	C335,339,	403 069 5601	CERAMIC 0.01U K 50V	5
Q216,217	405 002 6706	TR 2SA1179-M6	2	620,227,			
Q208-212,	405 000 3608	TR DTC114YK	18	303,			
52,54,				C218	403 031 9200	CERAMIC 7P D 50V	1
214,215,				C361	403 017 0900	CERAMIC 20P J 50V	1
503,506,				C325,2,	403 026 7501	CERAMIC 470P J 50V	7
507,510,				235-238,			
511,51,				102			
602,604				C326	403 012 6808	CERAMIC 15P J 50V	1
Q213,509	405 029 3009	TR DTA114YK	2	C337	403 071 8102	CERAMIC 2200P K 50V	1
SVR300	R-R1107154	PRESET RESISTOR, 1K	1	C338	403 075 0706	CERAMIC 6800P K 50V	1
SVR204	R-R1107154-3	PRESET RESISTOR, 10K	1	C626,627	403 009 9409	CERAMIC 100P K 50V	2
SVR201,	R-R1107154-4	PRESET RESISTOR, 20K	2	C233,234	403 073 4201	CERAMIC 3900P K 50V	2
301				C305	403 075 5305	CERAMIC 8200P K 50V	1
SVR202	R-R1107154-5	PRESET RESISTOR, 50K	1	C253,254	403 056 7205	POLYESTER 1000P J 50V	2
SVR203	R-R1107154-6	PRESET RESISTOR, 100K	1	C255	403 059 2900	POLYESTER 2200P J 50V	1
SVR302	R-R1107154-7	PRESET RESISTOR, 200K	1	C308	403 002 2506	CERAMIC 0.01U M 25V	1
C321	403 049 9803	ELECT 2.2U M 50V	1	C320	403 003 3304	CERAMIC 0.022U M 25V	1
C617,622	403 041 8804	ELECT 10U M 16V	2	C262	403 067 8208	MT-COMPO 0.068U J 50V	1
C505,504	403 041 8804	ELECT 10U M 16V	2	C602	403 001 1906	CERAMIC 0.01U M 16V	1
C624	403 041 8804	ELECT 10U M 16V	1	C606	403 092 6309	TA-SOLID 0.22U M 35V	1
				C637,640	403 004 1002	CERAMIC 0.047U M 25V	2
				C641	403 004 1002	CERAMIC 0.047U M 25V	1
				R53	401 025 8208	CARBON 22K JA 1/6W	1
				R501	401 026 8108	CARBON 4.7 JA 1/6W	1
				R252	401 024 7004	CARBON 1K JA 1/6W	1
				R609	401 024 7707	CARBON 100K JA 1/6W	1
				R610	401 025 8000	CARBON 2.2K JA 1/6W	1
				R608	401 027 0101	CARBON 4.7K JA 1/6W	1
				R618	401 025 8406	CARBON 22K JA 1/6W	1
				R224	401 027 0309	CARBON 47K JA 1/6W	1

NOTES: 1. Part orders must contain Model Number, Part Number and Description.  
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.



### **FISHER Hi-Fi Europa Vertriebs GmbH**

Stahlgruberring 4 8000 München 82	Tel: 089/420 45-0 Tlx: 524033
Technisches Labor/ Qualitätskontrolle	Durchwahl –120/121
Funkstörmeßlabor	–127/128
Service-Zentrale	
Color TV	–166
Hi-Fi/Audio	–168
Video	–172
Autoradio	–170
Ersatzteillager	–155/156
Techn. Schulung	–174

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### **Weitere Service-Zentralen in BRD (keine Ersatzteilbestellungen)**

Offenbach/ Frankfurt	Frankfurter Straße 121 6050 Offenbach	Tel: 069/88 80 45/48 Tlx: 4 12 558	Hamburg	Spaldingstraße 1 2000 Hamburg	Tel: 040/23 12 23/24 Tlx: 2 173 839
Military	Frankfurter Straße 121 6050 Offenbach	Tel: 069/88 80 45/48 Tlx: 4 12 558	Ditzingen	Max-Eyth-Straße 11 7257 Ditzingen	Tel: 07156/50 88 Tlx: 7 245 278
Düsseldorf-Erkrath	Albert-Einstein-Straße 8 4006 Erkrath 1	Tel: 0211/200 05-0 Tlx: 8 588 563	Berlin (Fisher Vertragswerkstatt)	Drewitz & Kaulbach Eisenacher Straße 53 1000 Berlin 62	Tel: 030/781 20 01 Tlx: 186 460

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Unser FISHER-Team steht Ihnen jederzeit gerne zur Verfügung. Ersatzteilbestellungen wickeln Sie bitte ausschließlich mit unserer Service-Zentrale München ab.

Senden Sie uns im Garantiefall die ausgefüllte Garantiekarte ein. Bei unverkauften Lagergeräten des Fachhandels gilt als Garantienachweis eine eidesstattliche Versicherung mit eingetragener Modellbezeichnung und Geräte-Nummer oder ein Lieferschein. Die gleiche Regelung besteht auch für Reparaturaufträge.

Bitte geben Sie unbedingt die Ersatzteil-Nummer und die Modellbezeichnung an.  
Sie sparen so wertvolle Zeit. Vielen Dank.